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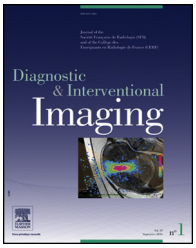

RADIOLOGIC PATHOLOGIC CORRELATION / *Gastrointestinal imaging*

An inflammatory fibroid polyp responsible for an ileal intussusception discovered on an MRI

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KEYWORDS
Intussusception;
Inflammatory fibroid polyp;
Vanek's tumor

Observation

During the diagnostic examination for suspected amyotrophic lateral sclerosis (ALS) in a 67-year-old male patient, a chest/abdomen/pelvis CT scan showed a 5 cm distal ileal mass.

This lesion of tissue density had an endoluminal origin and was associated with ileo-ileal intussusception, without intestinal occlusion. It was discretely enhanced as a roundel following injection of iodinated contrast agent.

A spinal cord MRI was performed as part of the neurological investigation, with additional sequences centered on the abdomen. The protocol performed on an Avanto 1.5T MRI with a body coil, included coronal T2-weighted HASTE, coronal T2-weighted TrueFISP Fat-Sat, axial T2-weighted HASTE SPAIR and axial T1-weighted FLASH 2D in/out of phase sequences. The ileal mass was visualized as a well-delimited lesion, homogeneous with T1- and T2-weighting, with no fatty component, and with a hyperintense peripheral ring with T2-weighting. The diffusion sequence showed a roundel with an external ring with accelerated diffusion, an internal ring with restricted diffusion and a central homogeneous area (Figs. 1 and 2). The ileo-ileal intussusception was not found to be associated with any intestinal occlusion.

As the diagnosis of ALS was confirmed, the patient was treated as a priority by assisted mechanical ventilation because of deterioration in his breathing.

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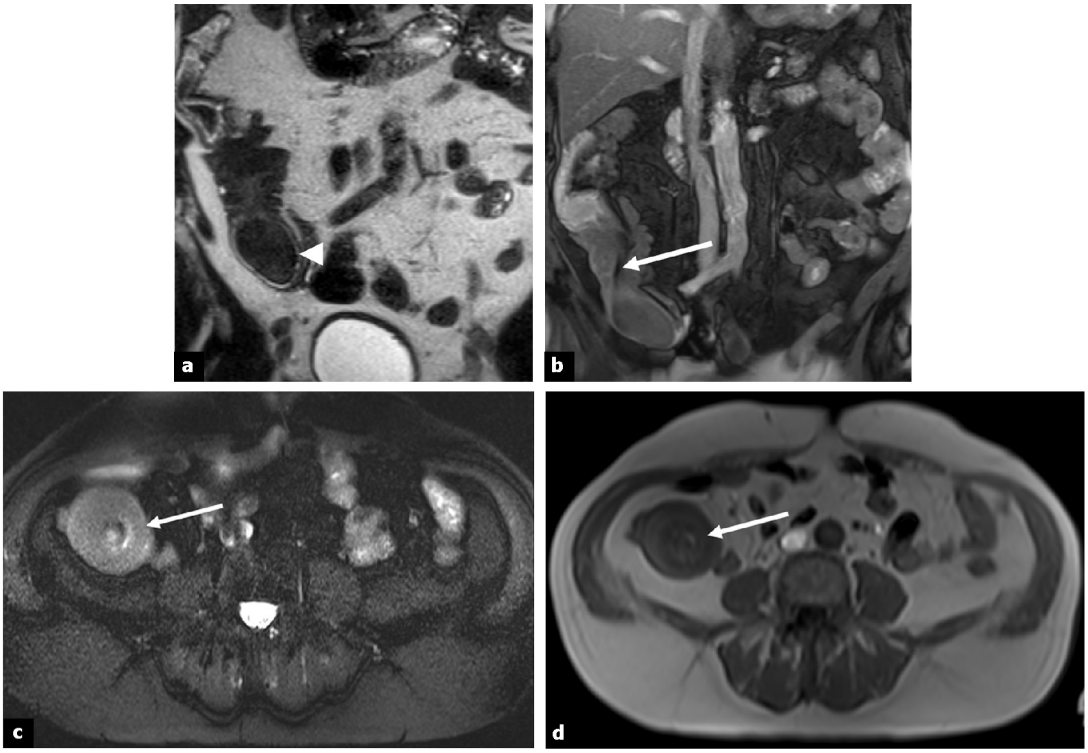

Figure 1. MRI slices showing the small bowel tumor (white arrowhead) complicated by an ileo-ileal intussusception (white arrow) (a: coronal T2-weighted HASTE [TR = 1000 ms, TE = 90 ms]; b: coronal T2-weighted TrueFISP Fat-Sat [TR = 3.2 ms, TE = 1.6 ms]; c: axial T2-weighted HASTE SPAIR [TR = 1180 ms, TE = 84 ms]; d: axial T1-weighted FLASH 2D in/out of phase [TR = 140 ms, TE = 4.8/2.4 ms]).

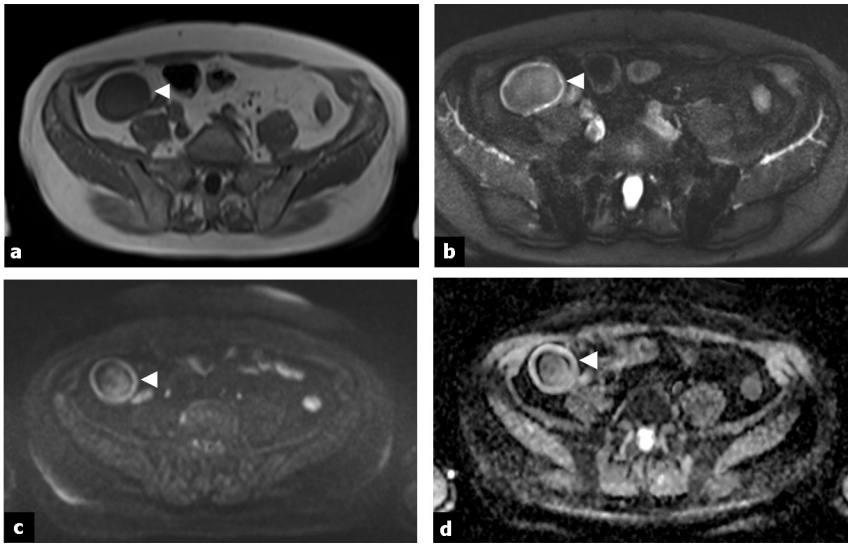

Figure 2. Axial abdominal MRI slices through the small bowel tumor lesion (white arrow) showing it as a T1-weighted homogeneous isointensity relative to the muscular tissue (a: T1-weighted FLASH 2D in/out of phase [TR = 140 ms, TE = 4.8/2.4 ms]), as a central T2-weighted hypointensity with a hyperintense peripheral ring (b: T2-weighted HASTE SPAIR [TR = 1180 ms, TE = 84 ms]), and as a roundel on the diffusion sequence (c: TR = 3300 ms, TE = 77 ms, b = 100, 400, 800) and ADC map (d).

He was admitted to hospital as an emergency five months after the initial CT scan with suspected intestinal obstruction. The CT scan performed found that the small bowel mass had increased in size to 9 cm. Morphologically, it was stable relative to the first examination, but complicated by small bowel occlusion with a transition zone centered on the intussusception (Fig. 3). This appeared to be extensive, associated with edema and discrete parietal dedifferentiation.

Surgical treatment was undertaken with ileal resection.

Macroscopic pathological anatomy examination found a well-delimited pedunculated polypoid ileal tumor. Microscopic examination showed an edematous, myxoid and collagen matrix containing fibroblasts, arranged concentrically

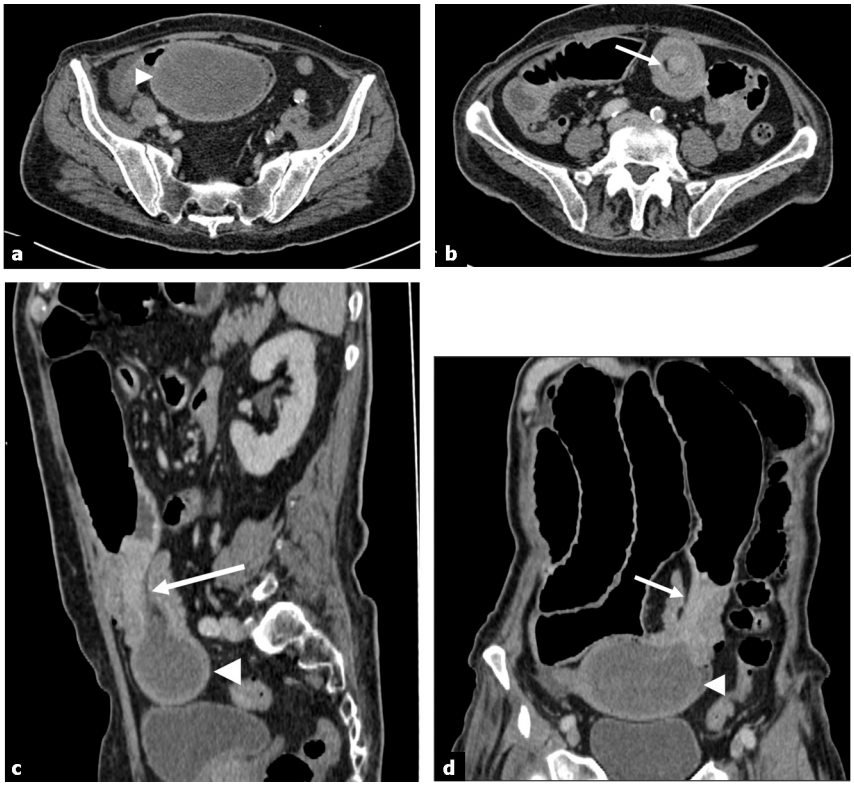

Figure 3. CT slices in the portal phase (70 s after injection of contrast agent) showing the ileo-ileal intussusception with incarceration of the mesentery (white arrow), related to the underlying small bowel tumor (white arrowhead), complicated by intestinal occlusion (a and b: axial plane; c: sagittal plane; d: coronal plane).

around vessels, associated with a polymorphic inflammatory infiltrate (Fig. 4). The immunohistochemical profile was CD34+, PS100− and CD117−. Together, these characteristics permitted final diagnosis of an ileo-ileal intussusception on an inflammatory fibroid polyp. There were no postoperative complications.

Discussion

An inflammatory fibroid polyp (IFP), or Vanek's tumor, is a rare pseudotumoral lesion of the digestive tube. Usually occurring in subjects between 60 and 70 years of age, with male predominance, it measures between 2 and 5 cm, and is generally asymptomatic. It is most commonly found in the antrum of the stomach (66—75%). An ileal location is the most frequently responsible for intestinal intussusception [1].

The radiological appearance has been very little described in the literature. An IFP presents as an intestinal tumor developing in the lumen. There is only one case in the literature showing its MRI appearance on a T2-weighted HASTE sequence [2]. The peripheral enhancement is probably related to the hypervascularized nature of the fleshy bud. The roundel appearance seen on the diffusion sequence seems to correspond with the pathological anatomy finding, with, from the periphery to the center, a fleshy bud (external ring with accelerated diffusion), a fibrous ring (ring with restricted diffusion) and a central edematous and myxoid area (homogeneous diffusion). Given these not very specific characteristics, several differential diagnoses have to be suggested. Adenomatous polyps are the most common benign lesions of the small bowel but they are usually small. Intestinal lipomas are recognizable by the presence of fat within the lesion seen with CT and MRI. Lymphomas account for 20 to 40% of malignant small bowel lesions typically seen as a voluminous endoluminal tumor. Gastrointestinal stromal tumors (GIST) have a similar appearance to IFPs but generally show partial exoluminal development with irregular margins and a heterogeneous appearance [3].

A GIST is the main microscopic differential diagnosis. Immunohistochemistry can differentiate between the two tumors, both being positive for CD34, whilst only GIST expresses CD117. An IFP is typically associated with a mutation of exon 12 of the *PDGFR-A* gene [4]. Given the non-specific nature of this lesion in imaging and the frequency of malignant lesions, surgery is the main diagnostic and therapeutic option [5].

Intussusceptions are divided into two etiopathogenic groups, depending on the presence or absence of a factor encouraging their development. Intussusceptions without an encouraging factor are usually discovered by chance and are asymptomatic. If a causal factor is present, the patient's history will show repeated episodes of abdominal cramp, nausea or vomiting suggesting incomplete obstruction. The lesions encouraging intussusception are often benign (lipomas, adenomatous polyps, Meckel's diverticulum, etc.). Malignant lesions are only found in 30% of cases (metastasis, lymphoma, adenocarcinoma, etc.) whereas in the colon, they form 66% of the causal lesions [6].

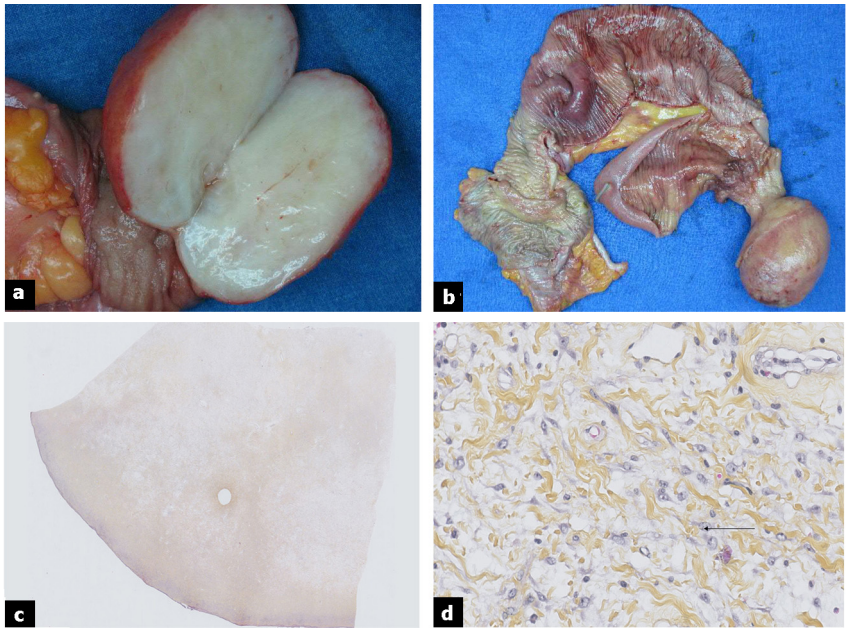

Figure 4. a: macroscopic appearance of the bisected inflammatory fibroid polyp; b: pedunculated inflammatory fibroid polyp attached to the invaginated ileum; c: low magnification appearance (HES, ×0.54) showing the edematous myxoid stroma; d: fibroblasts (black arrow) and inflammatory components within an edematous, myxoid and collagen stroma (HES, ×40).

In the adult, the reference imaging technique is computed tomography, the sensitivity of which is between 58 and 100%, and shows the presence of an intestinal occlusion, the topography of the condition and the morphological characteristics of any causal lesion [7]. Visualization of a mass within the intussusception, intestinal occlusion, edema with loss of parietal differentiation or a long, large caliber intussusception points to the presence of a causal lesion [8].

Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

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